Indo-German Energy Forum Support Office

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Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

Federal Ministry for Economic Cooperation and Development

KFW

GOVERNMENT OF INDIA MINISTRY OF POWER

GOVERNMENT OF INDIA MINISTRY OF NEW AND RENEWABLE ENERGY

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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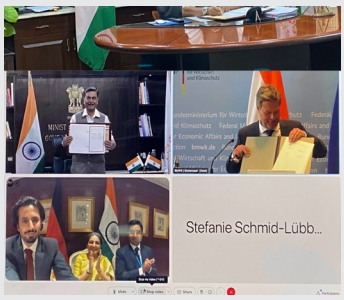

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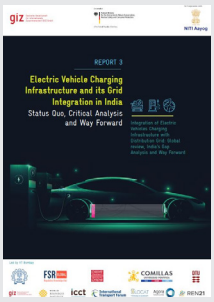

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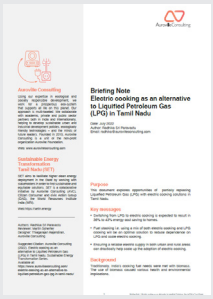

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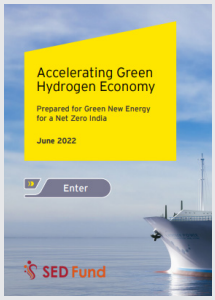

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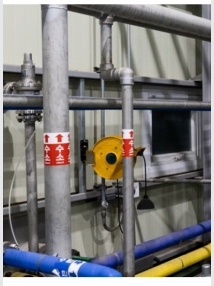

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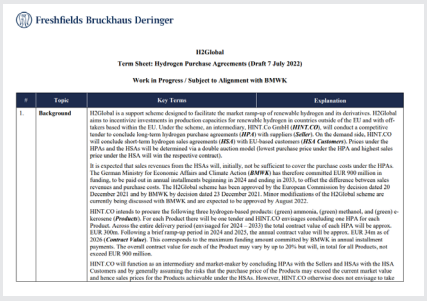

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1 Introduction

Dr. Vandana Kumar,
Additional Secretary
Ministry of New & Renewable Energy, Government of India
and Co-Chair of IGEF Subgroup 2 on Renewable Energies

Cooperation with Germany in Green Hydrogen will open up several avenues for our researchers and Indian industry" says Dr. Vandana Kumar, Additional Secretary in the Ministry of New & Renewable Energy (MNRE), Government of India. Amongst other positions held, she is the Co-Chair of Subgroup 2 on Renewable Energies under the Indo-German Energy Forum."

Dr. Kumar has nearly 30 years of experience in policy design and implementation across various sectors and is convinced that "effectiveness of Government, frugal innovation, industrial development and scaling up deployment of renewable energies will enable further sustainable growth.

Green hydrogen related matters are part of the extensive portfolio she oversees. She also is responsible for all administrative and financial matters of the National Institute of Solar Energy (NISE) and the Solar Energy Corporation of India (SECI). She is also in charge of Off-Grid Solar PV Schemes, including External Aided Programs (EAP), the Solar Manufacturing Scheme, Central Public Sector Scheme (CPSU) Govt. Producer Programs, the Foreign Direct Investment Cell, Renewable Energy Industry Promotion, and Solar cities just to name a few.

She graduated from Delhi University and holds a master's degree in Public Policy from Carnegie Mellon University. She holds a doctorate in philosophy from Gujarat University. She was a doctoral student at the India Innovation Institute at the University of Toronto and has participated in leadership programs at RIPA in London and the University of Cambridge. Prior to MNRE, Dr. Kumar was Joint Secretary at the Department for Promotion of Industry and Internal Trade under the Ministry of Commerce and Industry in India.

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Events and Activities

9th Indo-German Energy Forum

29 April 2022 |Berlin, Germany

The 9th Indo-German Energy Forum was held on 29 April 2022 at the German Federal Ministry for Economic Affairs and Climate Action (BMWK) in hybrid mode. The meeting was chaired by Secretary Shri Alok Kumar, Ministry of Power (MoP), Government of India and State Secretary Dr. Patrick Graichen, BMWK, Government of Germany. Both sides updated each other on current developments in the field of energy policy. The Co-Chairs of the IGEF Subgroups presented accomplishments, gave an update on present activities and received the requested approvals for future activities and topics of priority for future cooperation. The Co-Chairs agreed that energy storage and green hydrogen would be required to further decarbonize both economies. Energy Efficiency measures clubbed with the introduction of green hydrogen shall support the decarbonisation of hard to abate sectors such as steel and cement. Future land constraints for additional renewable energy capacities required may be overcome by the implementation of Agrivoltaics or Offshore Wind. Flexibilisation of existing thermal power plants remains of importance for bilateral cooperation. While technical feasibility could be demonstrated successfully, legal framework conditions shall be adapted to improve the economic viability of the flexible operation. Both Co-Chairs also agreed to cooperate in the establishment of simulator training, to train operators on how to operate their plants in flexible mode. More than 70 representatives from governments, business associations and companies were either physically or virtually present at the meeting.

The 9th Indo-German Energy Forum on 29 April 2022 in Berlin.

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India and Germany Sign Joint Declaration of Intent on Green Hydrogen Task Force

2 May 2022 |Berlin, Germany

The Cabinet Minister for Power and New and Renewable Energy, Govt. of India, Shri R.K. Singh and Dr. Robert Habeck, German Minister for Economic Affairs and Climate Action (BMWK) signed a Joint Declaration of Intent on an Indo-German Green Hydrogen Task Force virtually on 2 May 2022.

The task force will be supported by the Indo-German Energy Forum office in New Delhi and Berlin. It will promote the creation of a close network between government, industry and research institutes of both countries. Further, it will develop a roadmap with specific joint measures to support the market ramp-up of green hydrogen. The promotion of public and private investments in the production, transport and consumption of green hydrogen and its derivatives such as green ammonia or green methanol will be at the centre of cooperation. The task force will also facilitate the exchange of knowledge and experience in the areas of regulation, standards and safety procedures as well as sustainability criteria for green hydrogen.

India and Germany share the common goal of decarbonising their economies. Both countries have committed to developing a national green hydrogen economy to facilitate the achievement of the Paris Agreement targets. Given India's large renewable energy potential, it is in a position to produce low-cost green hydrogen to gradually decarbonise its economy, and also export excess production to meet global demand. The signing of the joint declaration underlines the will of both countries to further cooperate closely in a global upscale of green hydrogen.

The signing of the Green Hydrogen Task Force by Hon'ble Minister R.K. Singh and Dr. Robert Habeck.

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Indo-German CEO Energy Roundtable with Hon'ble Minister R.K. Singh (MoP and MNRE)

3 May 2022 |Berlin, Germany

On 3 May 2022, representatives of German renewable energy companies and business associations had the chance to interact with Shri R.K. Singh, Hon'ble Cabinet Minister for Power (MoP) and New and Renewable Energy (MNRE) and Dr. Patrick Graichen, State Secretary, Federal Ministry for Economic Affairs and Climate Action (BMWK). Participants discussed investment plans in India as well as challenges to be resolved to enable further foreign investment. Dr. Vandana Kumar, Additional Secretary, MNRE chaired the discussion physically in Berlin, Germany. The Indo-German CEO Energy Roundtable was jointly organised by Invest India and the Indo-German Energy Forum in the framework of the visit of the Hon'ble Prime Minister of India, Shri Narendra Modi to Germany. Dr. Nicole Glanemann, Deputy Head of Division Bilateral Energy Cooperation, BMWK as well as representatives from the German Ministry for Development Cooperation, Embassy of India in Berlin and the German Federal Foreign Office joined the conversation. The focus of the discussion was on energy market developments in green hydrogen, solar and offshore wind. The activity was part of the H2Uppp program, a joint program by Govt. of India and Govt. of Germany to support the market ramp-up of green hydrogen in India.

Indo-German CEO Energy-Roundtable with Hon'ble Minister R.K. Singh (MoP and MNRE) and State Secretary Dr. Patrick Graichen (BMWK).

Visit of Hon'ble Minister Shri Bhagwanth Khuba at Intersolar Europe 2022

12 May 2022 | Munich, Germany

On the occasion of the visit of Hon'ble Minister Shri Bhagwanth Khuba, Indian Ministry of New and Renewable Energy (MNRE), to Germany, the Indo-German Energy Forum Support Office organised a dialogue event on "Latest Developments in India's Solar Energy and Battery Storage Market". The event took place on 12 May 2022 in the framework of the largest conference and trade fair for solar energy and battery storage in Europe: The Intersolar Europe the smarter E Europe 2022. Welcome remarks were given by Ms. Stefanie Schmid-Lübbert, Head of Division Bilateral Energy Cooperation, German Federal Ministry for Economic Affairs and Climate Action (BMWK), Smt. Suman Sharma, Managing Director, Solar Energy Corporation of India (SECI), Shri Indu Shekhar Chaturvedi, Hon'ble Secretary, Ministry of New and Renewable Energy and Hon'ble Minister Shri Bhagwanth Khuba, MNRE.

Mr. Vinay Rustagi, Managing Director of Bridge to India, gave an insightful presentation on the ongoing energy transition in India and the challenges along the way. Key trends such as the development of India into a global green hydrogen hub were discussed. More than 60 people attended the event.

The smarter E Europe 2022 took place from 10 - 13 May in Munich. More than 65,000 visitors from 149 countries visited a total of four trade fairs - Intersolar Europe, ees Europe, Power2Drive Europe and EM-Power Europe. More than 1300 exhibitors from 46 countries presented their projects, products, and solutions in the fields of solar energy, energy storage, digital grids and electromobility. Next year's fairs will take place from 14 - 16 June 2023.

On 12 May, representatives of German companies and associations were given several opportunities to speak with Hon'ble Minister Shri Bhagwanth Khuba, Hon'ble Secretary Shri Indu Shekhar Chaturvedi and Smt. Suman Sharma about investment plans in India and related topics. The focus of the discussions held was on the latest developments in the Indian and European solar markets and what opportunities for future market development and cooperation may be further explored. Company representatives took the opportunity to present their current activities and commitment in India.

Ms. Schmid-Lübbert, Head of Division Bilateral Energy Cooperation, BMWK addressing the audience at Intersolar Europe 2022. (L)

Visit of Hon'ble Minister Shri Bhagwanth Khuba at the smarter E Europe 2022. (R)

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Hon'ble Minister Shri Bhagwanth Khuba visiting Agriphotovoltaic Power Plants in Germany

13 May 2022 | Bavaria, Germany

On Friday, 13 May, Hon'ble Minister Shri Khuba, MNRE visited two Agriphotovoltaic power plants in Germany. The dual-use of agricultural land for food production and electricity generation with solar panels offers high land efficiency, generates additional income for farmers and contributes to climate protection with renewable energy. The first project visited, is found in Althegnenberg and is called "Double Harvest" or "Doppelernte". The solar modules are installed on an area of around 2.2 ha of farmland and are spaced 14 metres apart.

In contrast to the usual east-west alignment, the PV modules are aligned to the south on a tracking system and are mounted at a height of 2.5 metres on a rotatable shaft with a total height of 4.4 metres. They follow the path of the sun using solar tracking and thus achieve above-average electricity yields. The Agriphotovoltaic plant in Althegnenberg has been connected to the grid since April 2020.

A second Agriphotovoltaic pilot project was visited at Krinner in Straßkirchen. Here, the delegation was shown how to install screw foundations, which eliminate the need to excavate and place concrete. The AgriPV power plant system by Krinner is currently in the pilot stage but aiming at a global market. Through steel cables, the system is stabilised and does not require high investment in the mounting structure itself. This low cost standardised system shall convince farmers to invest in AgriPV by themselves.

Hon'ble Minister Khuba inspecting a large scale Agrivoltaic plant in Bavaria, Germany. (L)

Demonstration of screw foundations without cement for Agrivoltaic power plants. (R)

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Govt. of India delegation visiting green Hydrogen Projects in Germany

3 May 2022 |Berlin, Germany

Dr. Vandana Kumar, Additional Secretary, Indian Ministry of New and Renewable Energy (MNRE), led a delegation visit to green hydrogen projects in the chemical park Leuna and the city of Leipzig on 3 May 2022. Dr. Kumar is responsible for solar energy and green hydrogen at the ministry. At the Fraunhofer Centre for Chemical-Biotechnological Processes (CBP) in Leuna, Prof. Dr. Ralph Gottschalg gave a lecture on the centre's green hydrogen research. The group visited a large-scale electrolyser test field implemented by Fraunhofer and the largest hydrogen compressor in Europe operated by Linde AG. In Leipzig, the group was welcomed to the office of the European Energy Exchange EEX. Discussions were held on the upcoming European green hydrogen trade and upcoming international tenders that will initiate a global market ramp-up. A highlight was the tour of a hydrogen-capable gas turbine in the south of Leipzig. Mr. Thomas Brandenburg, Director of New Business Models at the utility Stadtwerke Leipzig, spoke about the role of green hydrogen for future-oriented centralised electricity generation. Delivering hydrogen to residential homes was found not to be an option for the near future. In the future heat will either be supplied through the direct use of electricity in heat pumps or by making use of the waste heat from the hydrogen turbine being fed into a district heating pipe system.

Dr. Vandana Kumar, Add. Secretary, MNRE, visits green hydrogen projects in Leuna and Leipzig.

Subgroup III Meeting on Energy Efficiency

23 June 2022 | New Delhi, India

The Indo-German Energy Forum (IGEF) organised a Subgroup III meeting on the topic of "Energy Efficiency" on 23 June 2022 in New Delhi. The meeting was chaired by Ms. Schmid-Lübbert, German Federal Ministry for Economic Affairs and Climate Action (BMWK) and Shri Abhay Bakre, Bureau of Energy Efficiency (BEE) under the Indian Ministry of Power (MoP). Among other things, both discussed the question in which sectors green hydrogen can play a greater role in the future and where direct electrification may be the more efficient solution. A corresponding study is to be driven forward by the IGEF Support Office.

Co-Chair Shri Bakre briefed his German counterpart on the recent developments in India's power sector. India is said to be the fastest growing energy market in the world with very ambitious targets for energy efficiency and renewables. Co-Chair Ms. Schmid-Lübbert also welcomed the participants from Germany and India. She briefed her Indian counterpart on the recent policy developments under the new German Government.

Mr. P.V. Kiran Ananth, Confederation of Indian Industry (CII) gave a presentation on the outcomes of the study "Energy Efficiency in the Iron and Steel Sector". The national steel policy looks at about 300 million tonnes of steel production by 2030 which has important implications for a sector with investment cycles of 40 years and more.

Mr. Markus Wypior provided an update on an ongoing project on district cooling in India. Due to the change in the Government of Germany, the responsibilities within the International Climate Initiative have changed from the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) to the German Federal Ministry for Economic Affairs and Climate Action (BMWK). In this regard, the project has just been extended.

Both Co-Chairs appreciated the outcomes of the Subgroup III meeting. On behalf of the Ministry of Power, Government of India, Shri Bakre thanked his Co-Chair and the participants for a meaningful meeting. Both Co-Chairs look forward to further fruitful cooperation.

Launch of a study on the decarbonisation of steel in India. (L)

Subgroup III meeting co-chaired by Ms. Schmid-Lübbert, Head of Division, BMWK and Mr. Bakre, Director General, BEE. (R)

Berlin Energy Transition Dialogue (BETD) 2022

29 - 30 March 2022 |Berlin, Germany

The Berlin Energy Transition Dialogue (BETD) took place at the German Federal Foreign Office in Berlin from 29 - 30 March 2022. Foreign Minister Ms. Annalena Baerbock and Economic Affairs Minister Mr. Robert Habeck opened the 8th Berlin Energy Transition Dialogue (BETD). Under the motto "From Ambition to Action", ministers and high-level delegations from more than 50 countries held discussions with representatives from the business community, academia, and civil society. The global energy transition has led to an increase in trade and a greater degree of interconnection between countries. One example of this can be found in the energy partnerships that Germany has formed with countries around the world.

Dr. Vadana Kumar, Additional Secretary, Ministry of New and Renewable Energy (MNRE), Government of India took part in a panel discussion on "Green Hydrogen – Powering the Offtakers" on 29 March. She highlighted that demand creation is key to the success of a green hydrogen economy. India is making tremendous efforts to drive green hydrogen policies, for example by implementing the National Hydrogen Mission.

To reduce the costs of green hydrogen, scale and collaboration are imperative. How can hydrogen be scaled up in a manner that benefits all stakeholders? Shri Alok Kumar, State Secretary in the Ministry of Power (MoP), Government of India participated in a discussion on "Hydrogen Diplomacy: Resetting Global Energy Relations?". He pointed out that international cooperation is key to the success of green hydrogen. Green hydrogen is essential to achieve the twin objectives of energy security and energy transition. Subsequently, Shri Alok Kumar held several meetings with officials from the Govt. of Germany to strengthen Indo-German cooperation in the field of energy. Amongst others with State Secretary and Special Envoy for International Climate Action Smt. Jennifer Lee Morgan from the Federal Foreign Office as well as with the State Secretary in the Federal Ministry for Economic Cooperation and Development, Shri Jochen Flasbarth.

Shri Kandikuppa Sreekant, Chairman and Managing Director, Powergrid India, joined a panel discussion on "Green Finance". Mr. Sreekant highlighted that the Indian Government will issue green bonds to generate additional funds for climate projects. However, he also

Hon'ble Secretary of Power, Shri Alok Kumar interacting with Foreign Affairs Minister Annalena Baerbock und Vice-Chancellor of Germany, Dr. Robert Habeck. (L)

Additional Secretary New and Renewable Energy, Dr. Vandana Kumarr in a panel discussion on the cost competitiveness of green hydrogen. (R)

(L to R) Indian Ambassador Shri Parvathaneni Harish (EoI); Secretary Power (MoP) Shri Alok Kumar; State Secretary and Special Envoy for International Climate Action (AA) Smt. Jennifer Lee Morgan; Additional Secretary New and Renewable Energy (MNRE), Dr. Vandana Kumar; Commissioner for Energy and International Climate (AA), Norbert Gorissen.

pointed out potential hurdles for green financing in India. For instance, different taxonomies are a challenge for cooperation. He praised the efforts of the EU and the European Investment Bank (EIB) to set a standard but pointed out that it needed to be more widely disseminated.

Since 2015, the Berlin Energy Transition Dialogue (BETD) has been hosted by the German Federal Government. BETD is co-organized by the German Renewable Energy Federation (BEE), the German Solar Association (BSW Solar), and the German Energy Agency (dena) as well as the firm eclareon.

(L to R) Mr. Abhinav Verma (Powergrid), Mr. Saketa Musinipally (EoI), Shri K. Sreekant (Powergrid), Dr. Vandana Kumar (MNRE), Secretary Shri Alok Kumar (MoP), Secretary Jochen Flasbarth (BMZ), Mr. Philipp Knill (BMZ), Dr. Annette Windmeißer (BMZ).

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PtX Hub

International Green Hydrogen Knowledge Training

22 - 24 June & 12 - 14 July 2022 | Hybrid

In collaboration with the PtX Hub Berlin, the Indo-German Energy Forum (IGEF) organised two trainings on the topic of PtX products. Each training offered a comprehensive overview of the entire value chain of PtX products. Topics discussed in the training included the key drivers for PtX technologies, policy frameworks, and criteria for sustainable production. In the last part of the training, participants discussed opportunities and challenges for PtX production and use in India. The training enables participants to discuss and evaluate the potential production, application and potential future export of renewable PtX products.

India is a partner country of the global PtX Hub program. The Ministry of New and Renewable Energy (MNRE) and the Ministry for Economic Affairs and Climate Action (BMWK) in charge of energy policy had requested the Indo-German Energy Forum to organise the Renewable PtX-Training in India, inviting members of the ministries and state governments. Amongst others, India's largest power sector utility NTPC Limited under the Ministry of Power participated and presented its roadmap for green hydrogen.

Ms. Stefanie Schmid-Lübbert, Head of Division for Climate and Energy Cooperation with Asia, BMWK, emphasised India's excellent position for renewable energies: Somewhere in India the sun always shines and the windiest hours mostly start in the evening towards the night. The country can therefore generate green hydrogen day and night. Mr. Rolf Behrndt, Principal Advisor Green Hydrogen, GIZ, took the opportunity to point out the various support and financing programmes by the Federal Government of Germany in general and GIZ in particular. The Second training was held two weeks later, on 12 - 14 July. Participants who attended the training were from the Ministry of New and Renewable Energy, Ministry of Power, Ministry of External Affairs, NITI Aayog and State governments.

Ms. Stefanie Schmid-Lübbert, Head of Division for Climate and Energy Cooperation with Asia, BMWK, briefing Indian officials on Germany's Green Hydrogen Strategy.

Participants in the second PTX-Training.

A transfer workshop took place on the third day of the training, anchored by the trainer Prof. Christoph Menke. It was a 1.5-hour-long talk followed by a Q&A session. Among other topics, financing aspects and possibilities, access to the European market and (future) regulations as well as binding standards captured and stimulated the interest of participants. During the training, it became clear that the situation regarding standards and certifications, in particular, was often not comprehensible to the participants, such as which standards or certification possibilities already exist, which need to be consolidated and which are still in their infancy.

The overall training took place successfully in a hybrid setting, i.e. the participants in India joined together from a conference room while the PtX-Hub and trainers were connected virtually.

AgriVoltaics2022
Conference & Exhibition
15-17 June Piacenza, Italy & Online

Indian Delegation to the AgriVoltaics Conference 2022

15 - 17 June | Piacenza, Italy

AgriVoltaics2022 was held in Piacenza, Italy, from 15 - 17 July 2022. The conference is the largest professional conference around Agriphotovoltaics (AgriPV). It provides networking opportunities for scientists, companies, associations and policy experts. IGEF-SO accompanied an Indian delegation on their study tour to Germany and Italy. The group visited several AgriPV projects. In Donaueschingen, Germany, the group visited a 14 ha plant with about 11,000 bifacial solar modules, which covers the energy needs of about 1200 households. Due to the east-west orientation of the solar modules, electricity is produced in the morning and evening – complementing the production times of conventional solar plants. In Kressbronn near Lake Constance, the group visited a research facility of Fraunhofer ISE. On an area of about 0.4 ha, it is investigated how AgriPV and fruit cultivation, specifically the cultivation of apples, successfully work together. Near Lake Constance, in Bavendorf, another Fraunhofer ISE project is situated, which is similarly investigating the interaction between organic fruit cultivation and AgriPV systems. The special features of this plant are the use of two different AgriPV systems - one static system and one with tracking - and the use of semi-transparent solar modules.

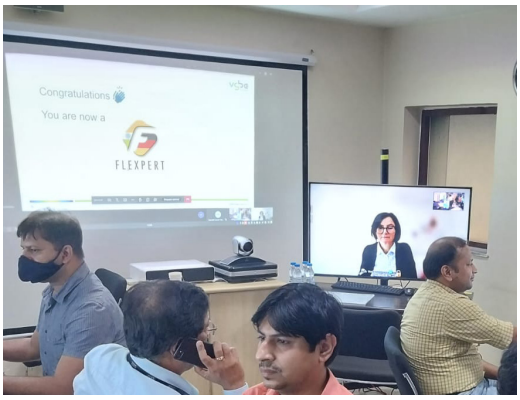
Participants of the delegation trip visited a vertical AgriPV plant in Donaueschingen, Germany.

Online Simulator Training for Indian Power Plant Personnel

4 - 8 July 2022 | Hybrid

The Indo-German Energy Forum (IGEF), in collaboration with KWS Energy Knowledge eG, Steag Energy Services India and vgbe, conducted a first simulator training for Indian power plant operators from 4 - 8 July 2022. The training aimed to familiarise the participants with the flexible operation of coal-fired power plants. Initially, theoretical impulses were given by Indian and German experts – the focus, however, was on the practical exercises on the simulator. The KWS simulator in Germany, which could be accessed via an internet connection, was used for this purpose. A total of ten participants were able to operate the simulator from the Steag office in Noida.

The KWS simulator refers to an 800 MW power plant with a Benson once-through boiler. Although this design does not correspond to the Indian conditions, the participants were able to take some insights from the training for their work – e.g. about fast start-ups through effective use of preheating and condensate throttling as an option for frequency support. Everyone involved agreed that practising with the simulator is great preparation for flexible power plant operation. In addition, a simulator is an efficient tool for testing flexibility options and optimising the operating regime.



Participants attending a flexibilisation training at Steag Training Centre.

The development of a simulator tailored to the Indian market is the focus of another IGEF project, which is being driven by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Steag Energy Services India. A broad-based simulator training program is being planned for this simulator, which will also include blended learning components. The training just carried out represented a first test run to generate ideas for future training concepts.

Welcome remarks kick-starting the training on flexible power plant operations.

Business Delegation to World Hydrogen Summit and Intersolar Europe 2022

7 - 14 May 2022 | Rotterdam, Netherlands and Munich, Germany

Together with the Indo-German Chamber of Commerce, The Indo-German Energy Forum (IGEF) and PTX-Hub Berlin organised an Indian delegation to Germany and the Netherlands from 7 - 14 May 2022 on the topics of Green Hydrogen and Agriphotovoltaics. The tour featured a visit to the World Hydrogen Summit in Rotterdam as well as to Intersolar Europe, which took place as part of The smarter E 2022, in Munich.

Besides the visits to the trade fairs, the participants also had the chance to experience first-hand how agriculture and energy production can be combined in the context of Agriphotovoltaic facilities near Leuven and Munich. A visit to the European Commission focused on certification criteria of sustainable and "green" hydrogen, especially regarding the export of green hydrogen from India to the European Union (EU). Another highlight was the visit to the Port of Rotterdam, during which the infrastructure development for green hydrogen became tangible. The topic of green hydrogen was also addressed during the visit to the Energiepark Mainz is operated jointly by Mainzer Stadtwerke AG and Linde AG. It uses four own wind turbines to generate the necessary energy to produce green hydrogen. Part of the green hydrogen is fed into the natural gas grid. In addition, it is filled into storage trailers that are used by industry. After a presentation on the technical data and the development of the site, the participants had the opportunity to closely inspect the different hydrogen processing stations.

Overall, the tour offered participants the opportunity to take a detailed look at various projects on sustainable solar generation through Agriphotovoltaics and green hydrogen production in Europe. The trade fairs also allowed participants to network and explore new opportunities for future cooperation.

Participants of the business delegation visited the EU Commission in Brussels and discussed sustainability criteria for green hydrogen.

Windergy India 2022

27 - 29 April 2022 |New Delhi, India

The 4th edition of Windergy India, a three-day exhibition and two-day conference was held from 27 - 29 April 2022 at Pragati Maidan, New Delhi, India. Conducted by the Indian Wind Turbine Manufacturers Association and PDA Trade Fairs after a gap of five years, the event saw participation from leading international stakeholders and experts from across the globe. More than 100 exhibitors showcased their innovations and solutions for the Indian market.

From Germany, more than 20 companies demonstrated their commitment to the Indian market by exhibiting. The Indo-German Energy Forum Support Office (IGEF-SO) organised the German Pavilion in collaboration with the Indo-German Chamber of Commerce (IGCC) at this exhibition. The German companies who participated had the opportunity to showcase their company products or services and had market access to one of the world's largest wind energy markets. The importance of wind energy in the current scenario was highlighted and discussed in detail. Visitors were guided to meet the German companies present to know about the innovations in wind energy.

German Pavilion at Windergy.

Women Energize Women Conference

12 May 2022 | Munich, Germany

The "Women Energize Women" conference, held under the umbrella event The smarter E 2022, successfully concluded its very first run, on 12 May 2022 in Munich. The event was organised by the German Federal Ministry for Economic Affairs and Climate Action (BMWK), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the German Renewable Energy Federation (BEE) with the aim to inform, mobilise, inspire and connect women around the world to be a progressive part of the energy transition.

The launch event saw participation from women from all over the world, with a particular focus on developing and emerging economies that Germany has concluded energy partnerships with, such as India. Participants from India, supported by the Indo-German Energy Forum (IGEF), included Dr. Rashi Gupta, MD, Vision Mechatronics Pvt Ltd; Disha Agarwal, Programme Lead, Council on Energy, Environment and Water; and Nishtha Gupta-Vaghela, Consulting Editor of Emerging Technology News (ETN).

The theme of the whole-day event centred on gender-inclusive opportunities in the energy sector, and deliberation on the importance of women participating in the energy transition. The programme began with a press conference organised for the media fellows, who came from energy partnership countries around the world, followed by engaging panel discussions, keynote speakers, workshops and networking sessions.

Presenting the initiatives by her organisation, during the "Marketplace of Ideas" session, Disha Agarwal said: "WIS (Women in Sustainability) leans in for women who lean in for the planet." She also expressed that participation from men and women is equally important to mainstream gender inclusiveness and diversity.

Dr. Rashi Gupta, in her inspiring talk in the "Investing in Women" panel discussion, questioned gender discrimination in the workplace, questioning why there should be a difference in the profession when both men and women are imparted with the same education. Encouraging the women aspirants, she said that overcoming small mental barriers prepares you to overcome bigger challenges – "It is our responsibility to take up the energies, absorb them, adapt to them and then use it to grow."

For Nishtha it was an exciting experience, to meet up with inspiring women from different parts of the world. She hopes to share the experience of women energising the renewables scenario through her writing. "It was a fabulous week of sharing, learning and energising. Kudos to the organisers for creating a unique platform to further the cause of opportunities for women in the field of new energies."

The "Women Energize Women" conference aims to address energy transition issues by looking at them from a female perspective. It facilitates discussions with female speakers from all across the globe, professional networks and mentoring opportunities for women in the energy transition.

For further information on the campaign, please contact Serafina Funk (BEE) at serafina.funk(at) bee-ev.de or Katarzyna Rezza Vega (GIZ) at katarzyna.rezza-vega(at)giz.de.

India Energy Storage Week (IESW)

2 - 6 May 2022 | Hybrid

The India Energy Storage Alliance (IESA) organised the India Energy Storage Week (IESW) 2022 in hybrid mode, from 2 - 6 May 2022. The event was supported by the Indo-German Energy Forum (IGEF).

The Union Minister for Road Transport and Highways (MoRTH), Shri Nitin Gadkari, inaugurated IESW 2022 and underscored the need for energy storage and developing innovative solutions in-house for India's clean and green transition. "Automobiles will be a vital industry in the coming years, and battery technology will be in high demand by 2030, bolstering the Make in India initiative," Mr. Gadkari said.

The 8th edition of IESW witnessed 5000+ footfalls with 1000+ delegates participating from over 20 countries. The 5-day event featured more than 150 thought leaders – from ministers, policymakers to industry veterans, researchers, and startup leaders, who shared their insights on the business landscape, policy and regulatory framework, R&D, and technological innovations underway in the field of energy storage, e-mobility, and green hydrogen.

Shri Nitin Gadkari, Union Minister for Road Transport and Highways (MoRTH) gave the inaugural address.

Knowledge Session: Green Hydrogen-based Chemicals

22 March 2022 |Virtual

The Indo-German Energy Forum (IGEF) together with the Indo-German Chamber of Commerce hosted a virtual knowledge session on "Green Hydrogen-based Chemicals" with more than 200 participants on March 22, 2022. Renowned experts from Guidehouse, thyssenkrupp and Fichtner provided insights into the opportunities and challenges of using green hydrogen-based chemicals. Dr. Nicole Glanemann, Deputy Head at the German Federal Ministry for Economic Affairs and Climate Action (BMWK) and Mr. Stefan Halusa, Director General at the Indo-German Chamber of Commerce, gave the opening remarks.

Mr. Matthias Schimmel, Managing Consultant, Guidehouse, spoke about the trend towards green hydrogen-based fuels, especially e-ammonia and e-methanol. While ammonia is primarily used to produce fertilisers today, ammonia could also be used in maritime shipping or industrial processes in the future. Likewise, methanol could be used in maritime shipping in the future. Synthetic fuels are key for decarbonising long-distance transport, shipping, and aviation, while direct electrification is the most efficient way to decarbonise short- to medium-distance transport. To produce e-ammonia and e-methanol, green hydrogen is a significant resource. Mr. Schimmel also presented the advantages and disadvantages of e-ammonia and e-methanol. Mr. Matthias Schlegel, Head of Hydrogen, Fichtner GmbH, gave a presentation on green hydrogen-based chemicals as a driver for decarbonisation. Green hydrogen is the basis for many chemicals that are and will be used by industry and consumers. The enormous potential of green hydrogen has already been recognised by many and the magnitude of typical project sizes announced increases steadily. Further, countries and companies are positioning themselves to deliver green chemicals to consumers and a global supply chain for hydrogen is forming. Mr. Schlegel underlined the huge market potential of hydrogen and the opportunity for green hydrogen to capture a growing share of the fossil fuel market. Dr. Christian Renk, Head of Technology, Innovation & Sustainability, thyssenkrupp Industrial Solutions AG, presented on "Paths and challenges to world-scale green ammonia production". He illustrated that the ammonia market is undergoing a fundamental change – as clean ammonia is indispensable in a net-zero world. The ammonia market is in transition from ammonia as a pure fertiliser base chemical to becoming a source of fertiliser as well as an energy carrier. These shifts are driven by several factors, such as legislative pressure or end-user demand for climate-friendly goods. Dr. Renk further presented how ammonia is used along the entire energy supply chain, for energy transport, as an energy carrier or for the conversion back into hydrogen. The discussion was followed by an open Q&A session which was moderated by Mr. Tobias Winter, Director, IGEF-SO.

Speakers of the virtual knowledge session on green hydrogen-based chemicals.

Flexibility Test Runs for Indian Coal-Fired Power Plants

22 March 2022 | Andal, India

32% stable minimum load operation and 2% MW load change per minute (in up and downwards direction) – these are new record values for the flexible operation of an Indian coal-fired power plant. A team of Indian and German experts achieved these parameters in the course of flexibility tests at the Andal power plant. The tests were conducted from 28 – 31 March 2022 and coordinated by vgbe in cooperation with Damodar Valley Corporation (DVC), Siemens Energy and Siemens India. "It was very special for us not only due to the successful tests but also due to the fact that German experts could be present at site after two years of Corona-related travel restrictions", explained vgbe project director Dr. Claudia Weise. The tests formed another milestone of the flexibility programme which was outlined under the auspices of the Indo-German Energy Forum (IGEF).

The Andal power plant is situated in the state of West Bengal and operated by DVC, which is a state-owned power generation company. The tests were conducted at the 500 MW unit 2 of this subcritical power plant. This investigation completed a series of IGEF flexibility tests. Previous tests were executed at the Dadri power plant operated by NTPC and the Maithon power plant operated by Tata Power.

All learnings from the flexibility tests will be documented in a report. Moreover, training and dissemination activities are in the planning. An online training course for Indian operators will be the starting point.

The flexibility programme is coordinated by the IGEF Flexibility Task Force, which is headed by the Director of Operations at NTPC (National Thermal Power Corporation). On the Indian side, in addition to NTPC, the Central Electricity Authority (CEA), the network operator POSOCO (Power System Operation Corporation) and BHEL (Bharat Heavy Electricals) are involved in the task force. The vgbe partner organisation EEC (Excellence Enhancement Centre) coordinates the work that is supported on the German side by the vgbe and the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ).

Minimum Load Operation (32%) at Andal Power Plant.

RenewX 6th edition
10 - 11 JUNE 2022
HITEX, Hyderabad

Business Opportunities for AgriPV in India

11 June 2022 | Hyderabad

The Indo-German Energy Forum (IGEF) Support Office organised the session "Business Opportunities for AgriPV in India" on 11 June 2022 at the trade fair and conference RenewX 2022 in Hyderabad. The session brought participants from the agriculture and solar community together to give inspiration and exchange experiences about AgriPV and its opportunities in India.

The session was moderated by Mr. Anil Kumar Bellary, Co-Director, IGEF. The experts gave the presentation which included best practice case studies followed by a panel discussion. Mr. Surindar Ahuja, Director, Sunmaster, said that Agrivoltaics is often considered unsuccessful, but that he wants to remove the myth and change minds by showcasing the positive aspects of Agrivoltaics.

Over the next 5 years, the availability of land is likely to become a significant issue. Agrivoltaics solutions integrate agriculture & photovoltaics to provide a long-term sustainable solution to our energy security, said Mr. Shravan Sampath, CEO, Oakridge Energy.

Solar can help farmers become bigger entrepreneurs by enabling precision farming, said Mr. Nimish Prabhukhanolkar, Partner & Chief Technical Officer, Sunseed APV.

The session was followed by a Q&A. All presentations of the session can be downloaded from the website of the Indo-German Energy Forum.

(L to R) Mr. Amit Sharma, InformaMarkets; Mr. Nimish Prabhukhanolkar, Sunseed, Mr. Surindar Ahuja, SunMaster; Mr. Rajneesh Khattar, Informa Markets; Mr. Anil Kumar Bellary, IGEF-SO; Mr. Shravan Sampath, Oakridge.

RenewX 15 6th edition
10 - 11 JUNE 2022
HITEX, Hyderabad

NSEFI
MAKING SOLAR ENERGY AFFORDABLE

Green Hydrogen- India's Pathway to Green Economy

10 June 2022 | HITEX, Hyderabad

The Indo-German Energy Forum (IGEF-SO) and National Solar Energy Federation of India (NSEFI) jointly organised the knowledge conference session at RenewX 2022, 10 - 11 June 2022, HITEX, Hyderabad. The session aimed at discussing the Green Hydrogen landscape in India and the reforms needed to drive the mission. The session also focused on huge investments announced as well as further R&D requirements.

The session was moderated by Mr. Bhagyathej Reddy, Director Power & Utilities, PwC. The panellists were Dr. R.K. Malhotra, President & Director General, FIPI (Federation of Indian Petroleum Industry); Mr. Gautam Reddy Kumbam, COO Zero C, Greenko Group; Mr. Debi Prasad Dash, Executive Director, India Energy Storage Alliance (IESA); Mr. Ashwini Kumar, Green Energy Expert and Editor, Fuel Cell India; Mr. Shardul Kulkarni, Consultant- GH2; and Dr. Deepak Yadav, Program Associate, CEEW.

Below are the main talking points discussed at the session:

Demand Side:

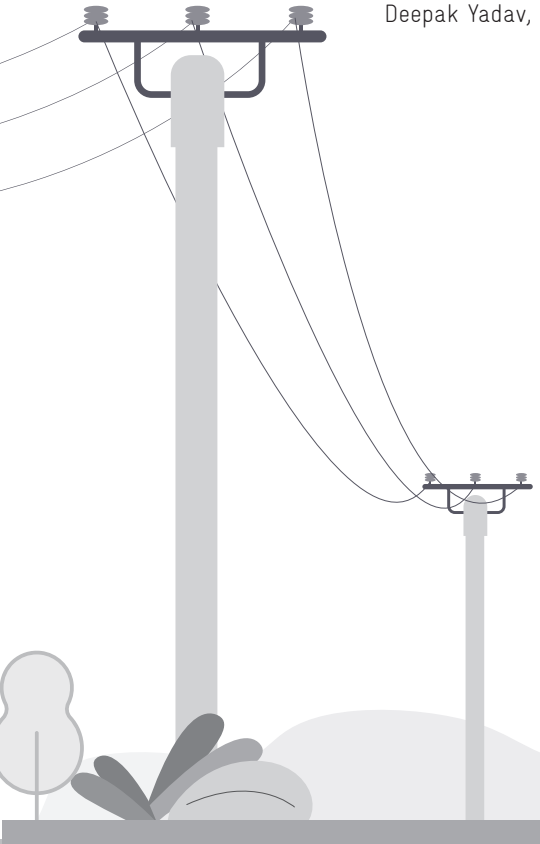
- Evolution of green hydrogen as a feedstock and as a fuel in the Indian context
- What segments are likely to be serviced by Green H2, and by when?
- What are the challenges in adopting Green H2 in these segments?
- What kind of policy directives are needed for Green H2 consumption?
- What are the triggers for the utilisation of Green H2 by end-users?

Supply Side:

- What reforms are needed to incentivise green electricity production?
- What are the challenges in setting up the needed Green H2 infrastructure?
- What kind of policy support Indian companies would need for Green H2 production?
- What could be the main sources of funding?

Others:

- What can we learn from global experiences?
- How is Green H2 as a storage source complementary to electric batteries?



India Smart Utility Week (ISUW2022)

2 - 4 March 2022 |Virtual

The India Smart Utility Week (ISUW2022), an international conference and exhibition on digitalisation of the energy sector and electric mobility, was held digitally from 2 to 4 March 2022. AHK India, in cooperation with the Indo-German Energy Forum Support Office, organised a virtual German pavilion in the European zone of the event. Mr. Winter, Director of the IGEF-SO spoke on "Agrivoltaics - Roadmap to Scale up Installation of Solar PV in Farms in India" and the first Indo-German "Smart Energy" workshop. More information here.

German Pavilion at ISUW 2022.

Discussion on Just Transition at the Forum on Energy Efficiency and Decarbonization

1 February 2022 |Virtual

The Forum on Energy Efficiency and Decarbonization, organised by the Alliance for an Energy Efficiency Economy (AEEE) took place on 1 February 2022. The Indo-German Energy Forum Support Office (IGEF-SO) supported the event and gave a presentation on the topic of Just Transition followed by an expert dialogue on the role of multilateral and bilateral organisations and foundations on India's path to decarbonisation.

ETEnergyworld Solar Power Congress

18 February 2022 |Virtual

The ETEnergyworld Solar Power Congress took place on 18 February 2022. It aims to bring the key stakeholders of the solar power industry on a single platform for an informed debate on the main issues and opportunities for growth in this industry. The future of India's solar growth story will be decided by three key factors – local manufacturing prowess, technology choices that can further cut costs, and a regulatory and policy landscape that can ensure sustained investor interest. The event focused on these aspects and gathered the leaders of the industry – from both the public and the private sector – to share their stories and learn from experiences to build a roadmap for the country's solar power journey. A great variety of expert speakers and special guests like the Hon'ble Minister of Power and New and Renewable Energy, Government of India, Shri R.K. Singh and Shri Bhagwanth Khuba, Hon'ble Minister of State for Chemicals and Fertilizers and New and Renewable Energy, Government of India, joined the event.

AHK India organised a virtual German pavilion in cooperation with the Indo-German Energy Forum (IGEF) Support Office. Dr. Martin Lux, Head of the Energy Team at KfW Development Bank, participated in a panel discussion on financing solar plants.

Virtual Pavilion at ETEnergyworld Solar Power Congress.

3 Developments in Indo-German Energy Cooperation

KfW India's new Country Director

Mr. Wolf Muth, Country Director KFW India.

Mr. Wolf Muth will be the new Country Director from 1 August 2022. Wolf Muth has held various professional and managerial positions at KfW Group for almost 30 years. Dr. Christoph Kessler is retiring from his current position as KfW India's Country Director after completing 5 years in the New Delhi office.

Before taking up his new position, he was Deputy Director and Regional Manager North Africa of KfW Development Bank. Prior to that, he worked as Country Director of KfW Office Cairo, Egypt (2013 – 2016). His sector focus in the years has been on renewable energy and energy efficiency in the MENA region. He was a member of the Board of Directors of the Green for Growth Fund (GGF) as well as a key account manager for regional renewable energy initiatives.

Prior to joining KfW Development Bank, he was Vice President in the Executive Affairs and Corporate Policy department and was particularly involved in the privatisation of state-owned enterprises assisting in capital market transactions. Before that, he worked for KfW IPEX Bank as Vice President in the aviation sector (acquisition, structuring and financing) in charge of commercial projects worldwide. During this time, Mr. Muth was seconded for two years to the Global Energy Group of Credit Suisse, New York, being involved in investment banking for both American and international power and energy companies.

His academic background comprises a BSc degree in Agricultural Economics (Munich and Kiel, Germany) and an MSc Degree in Marketing and Management (Cranfield University, UK).

Productive use of Access to Energy Solutions

9 March 2022 | Virtual

KfW, in collaboration with the Indian Renewable Energy Development Agency (IREDA) and PwC India, organised two 1-day workshops on "Productive use of Access to Energy Solutions" on March 9 2022, and March 10, 2022, respectively. The workshops were organised as part of KfW-IREDA "Access to Energy" (A2E) line of credit which focuses on improving the supply and use of sustainable clean energy services in rural areas through improved access to financing for project developers. Being the first of its kind with incentives, the line has attracted attention from different categories of players such as private sector companies, start-ups in the sector, NBFCs, MFIs and others looking for financing for veteran and new technology solutions and services to be implemented in rural areas.

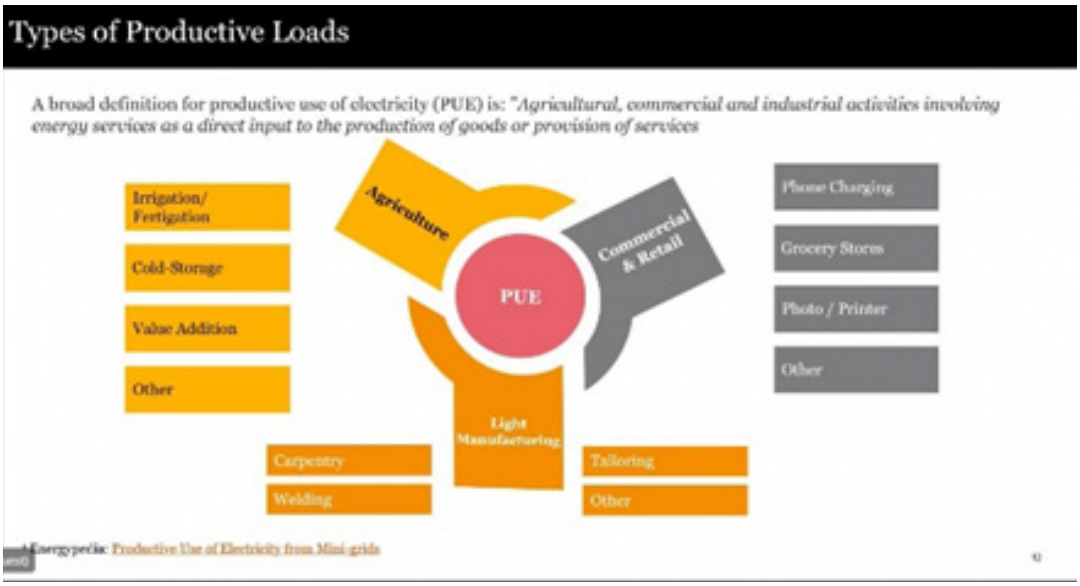
Topics covered during the workshop

- Need for productive loads and the corresponding benefits
- Classification of productive uses appliances
- Enabling environment for productive loads
- Primary requirements for incorporating productive loads
- Challenges of productive loads
- Case study analysis

The workshop on day 1 was organised for IREDA staff, and the workshop on day 2, on the other hand, for off-grid renewable energy (RE) sector organisations active in India. On both days, it was attended by 40+ participants. The workshop provided hands-on training to IREDA staff as well as IREDA's potential and existing sub-borrowers on using meaningful approaches to strengthen the adoption of productive uses of energy and to clear away hurdles for such uptake by A2E businesses. The workshop was delivered by Dr. Ashok Das, Founder and CEO of SunMoksha and Ms. Ayushi Sharma, Techno-Social Development Lead at SunMoksha.

The first session focused on presenting an overview of the productive loads in the access to the energy sector. The session included an introduction to productive loads in the A2E sector followed by the benefits of the

Types of different loads.



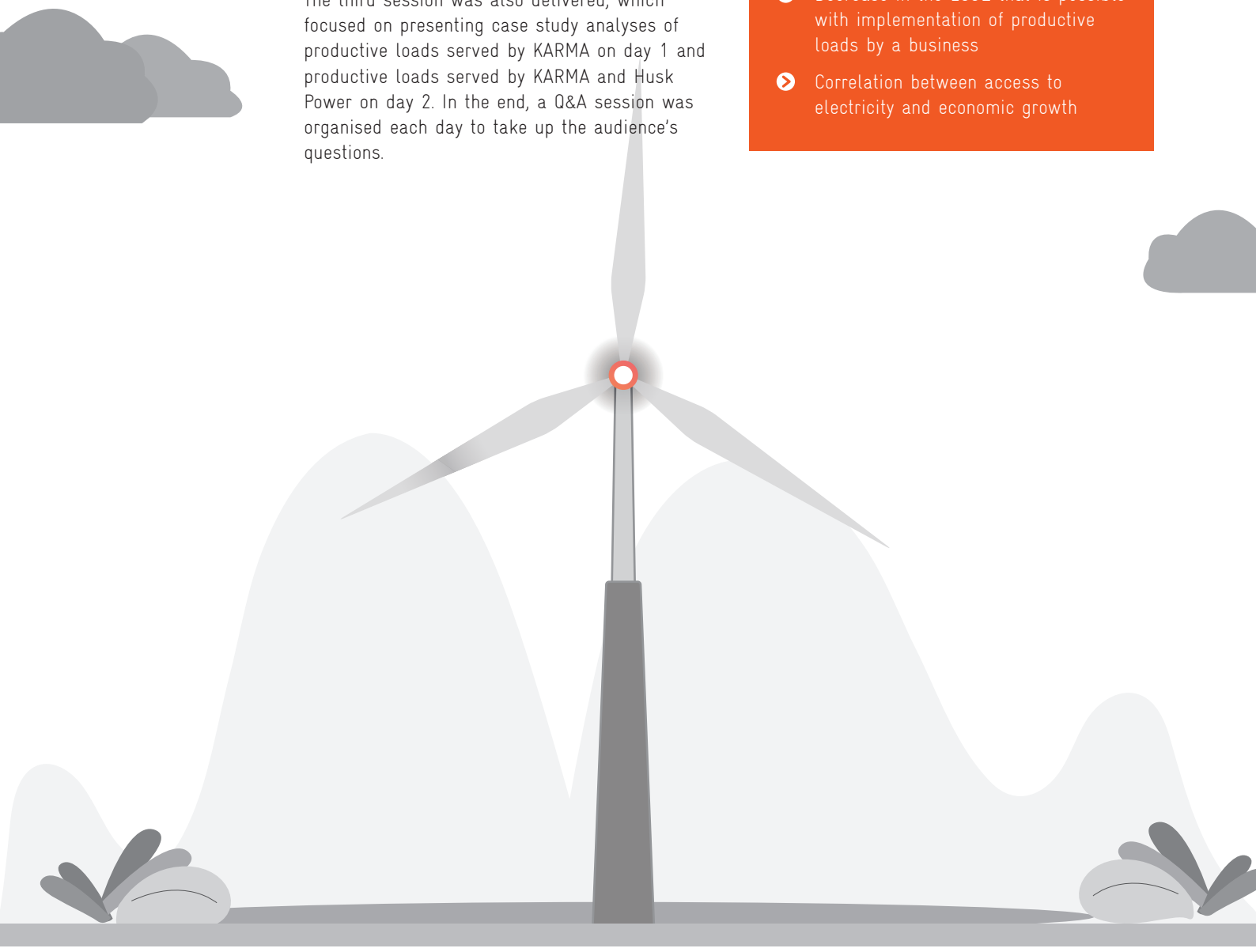
productive loads. This session also covered the classification of productive loads into agricultural and non-agricultural loads.

The second session of the workshop focused on discussing the implementation requirements of productive loads into businesses. This session also focused on the enabling environment required for productive loads and the essential preconditions for taking up productive loads. This session also covered the key challenges hindering the adoption of productive loads by businesses.

The third session was also delivered, which focused on presenting case study analyses of productive loads served by KARMA on day 1 and productive loads served by KARMA and Husk Power on day 2. In the end, a Q&A session was organised each day to take up the audience's questions.

The key discussion points included:

- Tariff structures prevalent for serving productive loads by mini-grids
- Capacity of a micro-grid that a new entrant in the market should consider developing in case productive loads are being served
- Kind of productive loads a business can serve that will also attract lenders / lending in the sector
- Decrease in the LCOE that is possible with implementation of productive loads by a business
- Correlation between access to electricity and economic growth



National Solar Rooftop Portal launched by Hon'ble Prime Minister

30 July 2022 | Virtual

The Ministry of New and Renewable Energy (MNRE), Government of India and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in India on behalf of the Government of the Federal Republic of Germany have signed an agreement for Indo-German Solar partnership Project (IGSEP). The objective of this project is to support the installation of the solar rooftop PV systems in the states of Gujarat, Himachal Pradesh, Uttarakhand, Jammu & Kashmir, Daman & Diu and Dadra Nagar Haveli, Uttar Pradesh, Punjab, Maharashtra, Arunachal Pradesh and West Bengal. The project IGSEP supported the MNRE in the development of the National Solar Rooftop Portal for India.

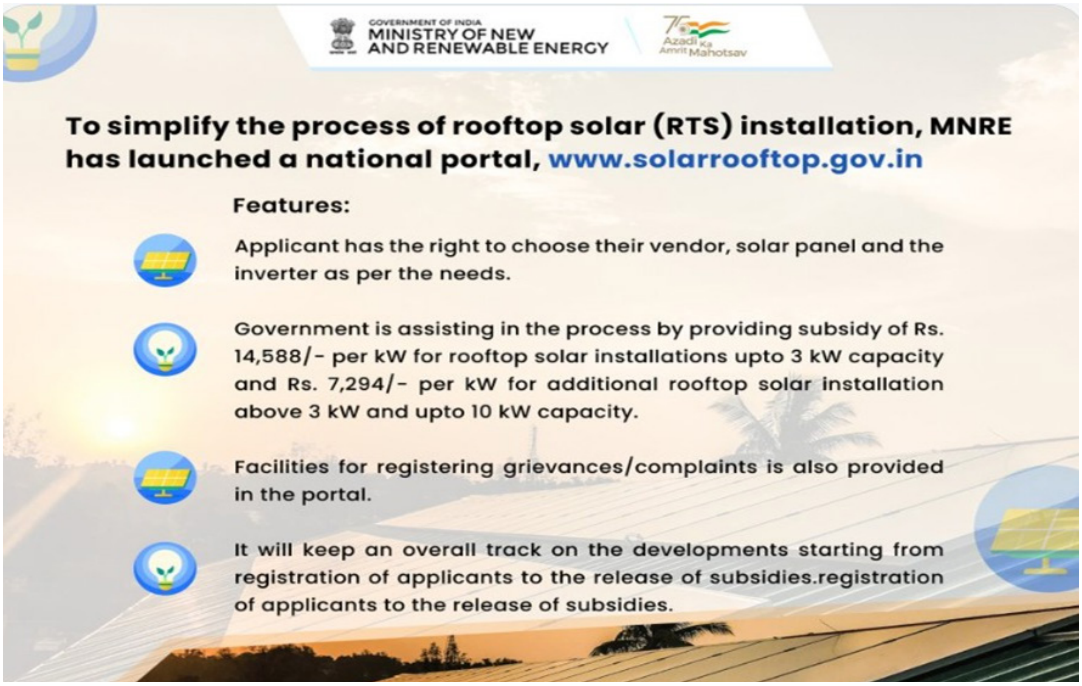
The Hon'ble Prime Minister Shri Narendra Modi launched the national portal for rooftop solar, which will enable online tracking of the process of installation of rooftop solar plants, starting from registering the applications to release of subsidy in residential consumers' bank accounts after installation and inspection of the plant. The estimated capacity under the national solar rooftop program is 4000 MW. This will be a major step towards realising the solar rooftop potential of the nation and will contribute towards India's target to install 500 GW capacity through non-fossil fuels committed in COP-26.

Hon'ble Prime Minister addressed the Nation and launched the national portal rooftop solar. ©GIZ

Hon'ble Prime Minister interacting with beneficiaries of PM-KUSUM and Solar Rooftop Scheme. ©GIZ

The subsidy available through the National Portal is as follows:

For more information please contact Mr. Kuldeep Sharma (Project Manager), kuldeep.sharma(at)giz.de.



German Government to support India's Vision – "One Solar City" per Indian State

18 April 2022 | Akshardham Temple, Gandhinagar, Gujarat

The rapid urbanisation and changing lifestyles are increasing the electricity demand in Indian towns and cities. The Central Electricity Authority, Government of India forecasts the peak electricity demand in India to reach 448 GWp by the year 2037. Given the continuing megatrend of urbanisation and the related energy demand in India, Renewable Energy (RE) including PV solar offers an excellent option for a climate-neutral source of energy which can be integrated into the urban space.

Recognising solar/ renewable power as a potential solution, on 27 May 2020, The Hon'ble Prime Minister Shri Narendra Modi called for each state to have at least one 'city' completely powered through renewable energy. To support India's vision, the Indo-German development cooperation project 'Integration of Renewable Energies in the Indian Electricity System (I-RE)' is providing consultancy and implementing support for transforming the cities into renewable energy cities. The project is commissioned by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

At present, the cities of Gandhinagar, Amritsar, Ayodhya, Thiruvananthapuram, Panaji and Bhubaneshwar are supported by the German Government for their transformation into '100% Renewable Energy Cities with high shares of solar energy'.

To demonstrate the use of solar in public space known as Urban PV, GIZ in association with the Gujarat Energy Research and Management Institute (GERMI) supported the demonstration of a 'plug-n-play' solar PV at various prominent places to create awareness and business models for public charging stations powered by solar. Ten of such "PV Port" systems were installed at Swaminarayan Akshardham, a significant and large temple complex in Gandhinagar, Gujarat. These systems were inaugurated on 18 April 2022. The importance of the event was underlined by the presence of Shri Shwetal Shah, Advisor, Climate Change Department,

Officials from Akshardham Temple, Climate Change Department and GIZ interacting and signing the handover of PV Ports. ©GIZ

Government of Gujarat and Senior Officials of the Swaminarayan Akshardham Temple.

Commenting on this milestone, Shri Shwetal Shah stated: "The Government of Gujarat is committed to building a sustainable and climate resilient future for the people living in the state. We thank MNRE, BMUV and GIZ for partnering with the Government of Gujarat in this milestone development." He highlighted that the Government of Gujarat will strive to develop other solar cities in Gujarat based on the learnings in Gandhinagar. Additionally, Shri Shwetal Shah emphasised the need for the proliferation of such PV Port systems to create awareness amongst the public.

Mr. Jörg Gäbler, Principal Advisor of the Integration of Renewable Energies in the Indian Electricity System (I-RE) project, GIZ India, highlighted that "such collaborations and the resulting synergies are expected to benefit consumers to a huge extent. We are very optimistic that the partnerships will provide us insights to deal with emerging challenges and capitalise on opportunities on the city level which help us replicate the results in other cities across India."

Shri Jagrut Patel from Swaminarayan Akshardham, Gandhinagar pointed out that the PV Port system is not only complementing the existing solar PV System of 400 kWp installed at Akshardham Temple but will also raise curiosity and awareness amongst the visitors which will ultimately result in the promotion of solar PV Technology.

For more information please contact Mr. Kuldeep Sharma (Project Manager) Kuldeep.Sharma(at) giz.de.

Kerala to cooperate with the German Government for developing Thiruvananthapuram as a "Solar City"

19 May 2022 | Thiruvananthapuram, Kerala

Recognising solar/ renewable power as a potential solution, on 27 May 2020, The Hon'ble Prime Minister Shri Narendra Modi called for each state to have at least one 'city' completely powered through renewable energy. In this regard, the Govt of Kerala has nominated the city of Thiruvananthapuram for its development as a Solar City. To achieve this aspiring target, the Agency for Non-conventional Energy and Rural Technology (ANERT) on behalf of the Govt of Kerala has signed a 'Letter of Cooperation' with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH for the support in developing Thiruvananthapuram into a 100% RE/ Solar City. The Letter of Cooperation was signed in the presence of Shri Narendra Nath Veluri, IFS, Govt of Kerala.

The GIZ under this project will develop the energy action plan with a 100% renewable electricity roadmap that will assist the city to follow a cleaner and greener pathway, reduce greenhouse gases (GHG) and make use of climate-related benefits while achieving other development goals. Additionally, by assessing the potential and aggregating the demand for solar PV, GIZ aims to proliferate distributed solar PV systems within the city.

To demonstrate the use of solar in public space known as Urban PV, GIZ in association with the ANERT will additionally support for the demonstration of a 'plug-n-play' solar PV at various prominent places to create awareness and business models for public charging stations powered by solar.

Commenting on this milestone, Officials from Govt of Kerala stated: "The Government of Kerala is committed to building a sustainable and climate resilient future for the people living in the state. We thank MNRE, BMZ and GIZ for partnering with the Government of Kerala in this milestone development." He highlighted that the Government of Kerala will strive to develop other solar cities in Kerala based on the learnings in Thiruvananthapuram.

GIZ during the ceremony reiterated Germany's commitment to cooperate with Indian stakeholders for achieving the RE energy target and highlighted that cities will be the driver for future energy demand and thus highlighted that "such collaborations and the resulting synergies are expected to benefit consumers to a huge extent. We are very optimistic that the partnerships will provide us insights to deal with emerging challenges and capitalise on opportunities on the city level which help us replicate the results in other cities across India.

For more information please contact Mr. Kuldeep Sharma (Project Manager), Kuldeep.Sharma(at)giz.de.

Team ANERT, Project Team from Deloitte/ AHA Solar and GIZ team in group picture after the signing of Letter of Cooperation. ©GIZ

Transforming Indian Cities to 100% Renewable Energy Cities (Solar Cities): Stakeholder Consultation Workshops on City Renewable Energy Transformation, Solarization, and Energy Action Plan

24 May 2022 – Thiruvananthapuram | 17 June 2022 – Amritsar | 28 June 2022 – Ayodhya Governmental counterparts for project implementation

Between 24 May and 28 June 2022, GIZ organised three key stakeholder interaction events as per the project on "Transforming Indian cities to 100% renewable energy cities (Solar Cities)". On 24 May, GIZ signed a letter of Intent for cooperation between GIZ and ANERT on transforming the city of "Thiruvananthapuram" to a Solar City. This was followed by a stakeholder interaction workshop, which provided an interactive forum for discussion with the electricity utility, state nodal agency for RE, state nodal agency for energy efficiency, municipal corporation, and other key government departments on the plan for solarisation of Thiruvananthapuram city.

The event started with a video message from the Hon'ble Minister for Electricity, Government of Kerala. The keynote address in the event was delivered by the Principal Secretary, Transport Department, Government of Kerala, followed by a speech by the CEO of ANERT on the vision for the transformation of Thiruvananthapuram into a Solar City.

On 17 June 2022, GIZ, along with Punjab Energy Development Agency (PEDA) organised a workshop with various Government departments on the plan for the solarization of Governmental buildings in the city of Amritsar.

The workshop was chaired by Sh. Harpreet Singh Sudan, DC, Amritsar District. Along with officers from PEDA, the electricity utility (PSPCL) and the municipal corporation, the workshop was attended by the representatives of various government departments such as health, education, police, water etc.

ANERT chief executive officer Narendra Nath Veluri and GIZ principal advisor Joerg Gaebler after signing the intent for cooperation for the Solar City project in Thiruvananthapuram on 24 May. ©GIZ

Shri K. Krishnankutty, Minister for Electricity, Government of Kerala, delivered a video message to the participants of the stakeholder workshop on transforming the city of "Thiruvananthapuram" into a Solar City on 24 May in Thiruvananthapuram. ©GIZ

GIZ team with Shri Vishal Singh, IAS, Municipal Commissioner, Ayodhya and Vice Chairman Ayodhya Development Authority; Shri Sachchidanand Singh, Additional Municipal Commissioner, Nagar Nigam Ayodhya; key officers of UPNEDA, and various corporation councillors. ©GIZ

On 28 June, GIZ also assisted in delivering a stakeholder interaction workshop jointly organised with Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA) and Ayodhya Development Authority (ADA) on transforming the city of Ayodhya into a Solar City.

The stakeholder interaction was chaired by the Hon'ble Vice Chairman, Ayodhya Development Authority, and was attended by various municipal corporation councillors and key municipal corporation officers, along with officers from UPNEDA. Various strategies for increased rooftop solar adoption in the city were discussed during the interaction session.

For further information please contact Mr. Mrinal Madas, mrinal.madas(at)giz.de.

GIZ team with Shri Harpreet Singh Sudan, DC, Amritsar District; Ms. Gursimran Kaur, EAC, Amritsar District; Shri Supinder Singh, Additional Director, PEDA; and other key officials on 17 June 2022, in Amritsar. ©GIZ

Fourth National Workshop on PM-KUSUM and Rooftop Solar Schemes

22 April 2022 | New Delhi

The Indian Ministry of New and Renewable Energy (MNRE) with support from Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) organised the Fourth National Workshop on the Prime Minister's Kisan Urja Suraksha Evam Utthan Mahabhiyan (PM-KUSUM) and Rooftop Solar Schemes on 22 April 2022 in New Delhi. The workshop was chaired by Mr Lalit Bohra, Joint Secretary, MNRE, and attended by over 100 officials from State Nodal Agencies (SNAs) and State Distribution Companies (DISCOMs). The purpose of the workshop was to review the implementation of PM-KUSUM and Rooftop Solar schemes and to come up with measures for the expansion of the schemes.

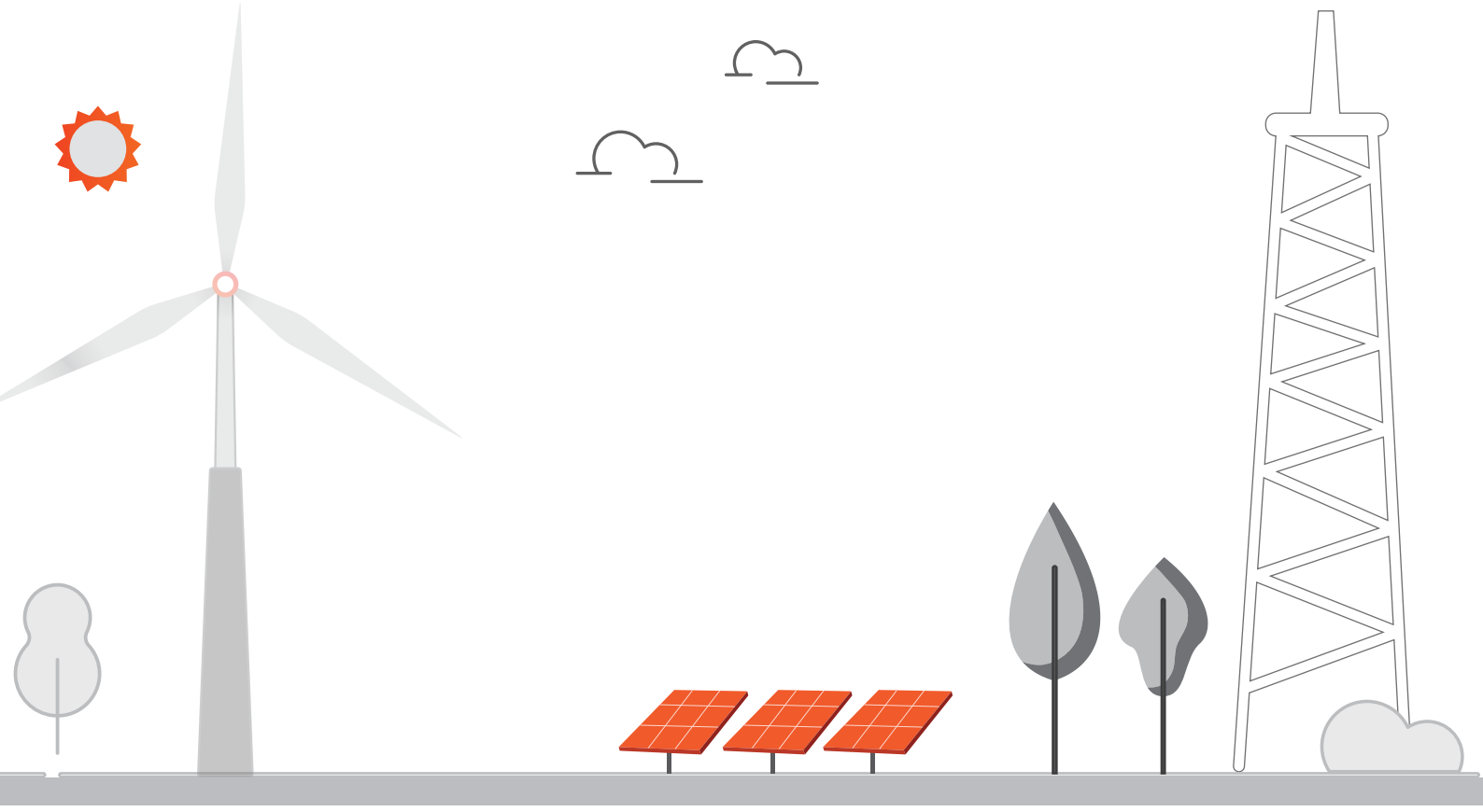
The morning session of the workshop focused on PM-KUSUM where MNRE deliberated upon the objectives of components A, B and C under the PM-KUSUM scheme, informed about CPSUs that are created for the purpose of public awareness and mentioned the importance of new technologies for farmers, such as monitoring solar pumps using RMS and sizing water pumps using excel-based tools.

During the workshop, the initiatives taken by MNRE in collaboration with GIZ under PM-KUSUM were presented by the different organisations. The International Water Management Institute (IWMI) and the International Institute for Sustainable Development (IISD) presented their work on a Solar Irrigation Pump Sizing Tool and a guidebook for state-level policymakers, respectively. Harikrupa Automation Private Limited (HKAPL) presented their observations on RMS data received from the states and the challenges in analysing the data. HKAPL also explained the features of the PM KUSUM Mobile application. GIZ presented the results of the survey project conducted on asset condition & utilisation of solar water pumps in India. HKRP Innovations gave a presentation on IoT-based virtual feeder segregation. In addition, the States of Rajasthan, Gujarat, Tamil Nadu, Himachal Pradesh, and Tripura also presented their work progress, outcomes, and challenges under PM-KUSUM.

After all presentations, MNRE provided a review of the awareness campaign of PM-KUSUM by CPSUs and shared the learnings from the survey project on system inspection of solar pumps installed in pre-KUSUM schemes with the participants.

The session on PM-KUSIM ended with the concluding remarks of Shri Lalit Bohra. He mentioned that the PM-KUSUM scheme is useful for addressing the global issue of climate change as it is a way to reduce the use of fossil fuels. He expressed that the States should adopt innovative technologies, conduct state specific campaigns for sensitising farmers, and share their success stories with the Ministry.

For further information please contact Mr. Nilanjan Ghose at nilanjan.ghose(at)giz.de; Mr. Prasun Das at prasun.das(at)giz.de.



60yrs Indo-German Celebration-Book Release & Painting Exhibition

24 March 2022 | Jharkhand, India

On 24 March 2022, the visit of the German Ambassador Walter J. Lindner along with his delegates at Delhi Public School, Ranchi, marked the revitalisation of the more than 60 year-long Indo-German Cooperation for sustainable development and energy conservation. The delegates included Christiane Hieronymus, Head of Economic Cooperation & development as well as Consulate General Manfred Auster.

In 2019, the Indo-German Energy Programme developed, designed and implemented an awareness campaign for children and youth to celebrate 60 years of Indo-German Development Cooperation. GIZ recognises the value of investing in the young ones and instilling the values and principles of sustainable development in young India to speed up the country's transition to sustainable development. Under this awareness campaign, a school-level painting competition on the theme of sustainable development and neighbourhood activities was organised. More than 10,000 students from over 500 schools participated in the painting competition.

The event marked the re-exploration of this 60 year long Indo-German partnership, which started through the painting competition and neighbourhood activities on sustainable development. The day was marked with the rhythmic welcome chorus by the students, a walk-in painting exhibition and a booklet release. The paintings were the perfect exhibit of the artistic take on the commitment toward sustainable development and energy conservation initiation through relentless Indo-German Cooperation. #catchthemyoung

Ambassador Walter J. Lindner expressed his concern about growing global warming and how it can harm the natural habitat. He also expressed the continuation of this Indo-German Collaboration. The booklet released on this event documented this partnership and strives to illustrate activities undertaken within the context of the 60-years celebration programme and to foster the objective of sustainable development and energy conservation.

The German Ambassador Walter J. Lindner with the students. ©GIZ

The Principal of the school Dr. Ram Singh also conveyed extreme delight about partnering with GIZ in nurturing and sensitising young citizens and in equipping them to make the planet a better place than what it is today.

For further information please contact Mr. Nitin Jain at nitin.jain(at)giz.de.

Strategic Meeting on Low Carbon Energy Scenario for the State of Punjab

3 March 2022 | Punjab, India

Punjab Energy Development Authority (PEDA) in partnership with the IGEN Access-II program of GIZ India organised a high-level strategic discussion on Low Carbon Energy Scenarios on 3 March 2022 in PEDA's Office. The meeting was jointly chaired by Shri Dilip Kumar (Hon'ble Principal Secretary, NRES) and Dr. Winfried Damm, Program Head, Indo-German Energy Program.

Following the presentation and discussion on current energy trends in Punjab and findings of baseline scenarios, GIZ presented four major energy scenarios, including 100% RE and 100% decarbonisation scenarios. Punjab showed its interest in harnessing the full RE and EE potential of the state from the supply side as well as in creating the favourable ecosystem necessary for the demand side shift towards cleaner fuels through initiatives like Solar pumps, Agro PV, BIPV, e-tractors, energy efficient and solar-based cold storages, CBG, green hydrogen etc.

As a way forward, both the Government of Punjab and GIZ decided to develop a detailed State Energy Action Plan based on a comparative assessment of different scenarios as well as by analysing their likely techno-commercial viability and socio-environmental impact.

For further information please contact Mr. Manoj Mahata at manoj.mahata(at)giz.de.

"Discussion on Low Carbon Energy Scenario of Punjab" - Represented by Shri Dilip Kumar (Hon'ble Principal Secretary, Government of Punjab; Dr. Winfried Damm, Program Head of IGEN; Mr. M. P. Singh- Director of PEDA; and Ms. Nidhi Sarin, Leader, IGEN Access-II program, along with other energy modelling team.

E-launch of GIZ's Report-3 on EV Charging Infrastructure and its Grid Integration

28 July 2022 | Virtual

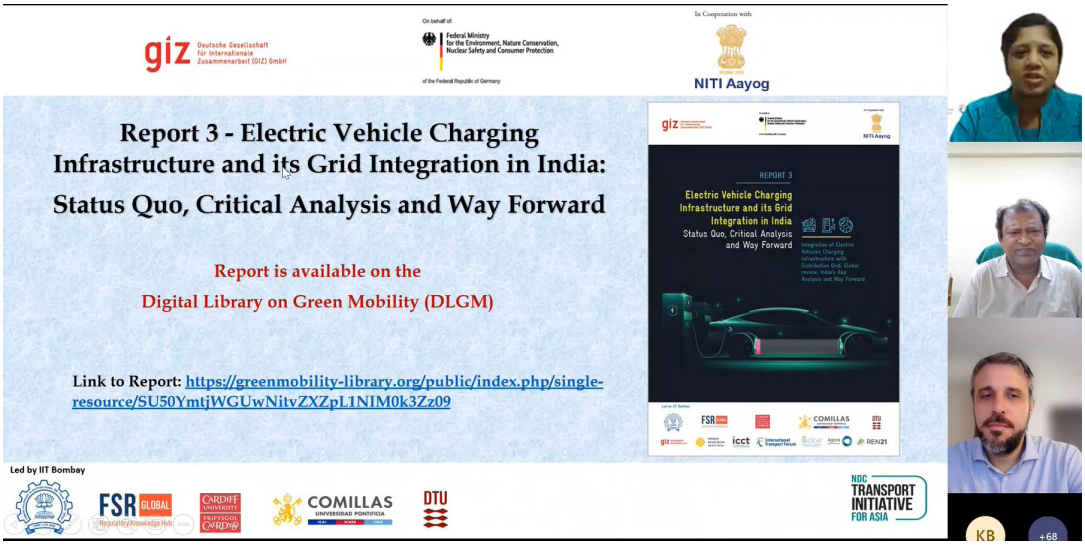
GIZ and IIT Bombay in cooperation with NITI Aayog, released the third report from the study "Integration of Electric Vehicles Charging Infrastructure with Distribution Grid: Global Review, India's Gap Analyses and Way Forward". This study is carried out by a consortium led by IIT Bombay along with Florence School of Regulation (FSR), Technical University Denmark (DTU), Cardiff University and Universidad Pontificia Comillas. The study has been carried out under the purview of GIZ's Nationally Determined Contribution - Transport Initiative for Asia (NDC-TIA) project, in close collaboration and under the guidance of NITI Aayog.

In this event, Mr. Tobias Winter, Head - Indo German Energy Forum - Support Office, GIZ India, delivered the opening remarks. The report was released by Mr. M. Vijay Kumar, Joint Adviser, Infrastructure Connectivity, NITI Aayog, Government of India. Mr. A. K. Rajput, Chief Engineer (R&D), CEA, delivered the guest address and Prof. Zakir Rather, Department of Energy Science and Engineering, IIT Bombay, presented the key insights from the report. This specific report is the third report in the series of four reports of this study. The report is focused on detailed documentation and analysis of EV charging infrastructure and its grid integration in Indian EV ecosystem covering the current status analysis of various aspects including EV charging technology, standards and protocols applicable in India, grid integration status of EVs, stakeholders in Indian EV ecosystem, policy and regulatory matters related to EV charging infrastructure (both at central and state level). Moreover, gap analysis in EV charging infrastructure and its grid integration in Indian EV ecosystem is also presented in this report. Since the Indian EV market currently constitutes of mainly electric 2W, 3W and 4W (e-cars), the main focus of this report is on these passenger vehicle segments.

YouTube link for the event - https://www.youtube.com/watch?v=V1j-hjlN6oY

Link to download Report 3 - https://greenmobility-library.org/public/index.php/single-resource/SU50YmtjWGUwNitvZXZpL1NIM0k3Zz09

For more information please contact Ms. Sahana L at sahana.l(at)giz.de.



Report 3 released by Mr. M. Vijay Kumar, Joint Adviser, Infrastructure Connectivity, NITI Aayog. ©GIZ

4 Quote of the Month from India and Germany

Quote of the Month from India

Shri R.K. Singh,
Hon'ble Minister of Power,
Govt. of India

"India has emerged as one of the world leaders in energy transition with the fastest rate of growth of renewable energy capacities in the world."

Source: PIB

Quote of the Month from Germany

Dr. Robert Habeck,
Federal Minister for Economic Affairs and Climate Action,
Govt. of Germany

"Expanding the production and use of green hydrogen serves to reach our long-term common objective to accelerate the green hydrogen ramp-up and thus make green hydrogen economically viable. In the context of our energy partnership with India, we have agreed to intensify our cooperation on the development of innovative solutions for the sustainable production of green hydrogen. This is an important milestone in order to reduce our dependence on fossil fuels."

Source: BMWK

5 Energy Transition News

How does an offshore wind farm work?

Wind, waves, alternating and direct current: offshore wind energy is regarded as a cornerstone of the clean energy transition and supplies millions of people with green electricity. But how does an offshore wind farm work? And how does the electricity get from sea to land? Come and pay a quick visit.

This is what it's all about: offshore wind farms off the coast of the North Sea and Baltic Sea produce green electricity for millions of people.

In 1991, even before the word „Energiewende" (energy transition) appeared in a German dictionary, the world's first ever offshore wind farm was established off the Danish island of Lolland. It was not until almost 20 years later that the first offshore wind farm in open water began operations – alpha ventus. When it comes to the future of wind energy off the shores of Germany, the North Sea is still the focus. It might increase its generation capacity tenfold from now till 2050. Germany wants to increase its capacities to at least 30 gigawatts by 2030, and 70 gigawatts by 2045.

Sea as far as the eye can see

Many areas cannot be considered for wind farms for reasons of nature and species conservation or other activities, such as shipping, fisheries or military uses. Suitable areas are therefore identified as part of marine spatial planning and special planning for offshore wind energy. This planning ensures that the delineated areas are used as efficiently as possible and that the offshore wind farms and offshore grid connections to transport the electricity to land go onstream at the same time.

Staying with the wind

On the high sea, the wind blows much more constantly than on land, but the wind energy installations need to be much more resilient. Because unlike installations on land, a large part of these marine giants is below the surface and is thus exposed not only to the strong sea winds, but also to currents, waves and tides.

©Siemens Energy

Today, turbines with a capacity of eleven megawatts (MW) are already being installed, and it is expected that capacities of 15 MW and even up to as much as 20 MW will be operating before the end of this decade. The total capacity of offshore wind farms is therefore several hundred megawatts, and in future will generally pass the one gigawatt mark.

The wind blowing over the sea sets the huge rotor blades in motion. This movement is converted into energy in the generator nacelle as follows: the rotor blade turns the main shaft and a gear unit transfers the rotational motion to a fast-rotating high-speed shaft. To this shaft is attached a magnet that rotates inside the generator between coils made of conductive wire. This produces electricity.

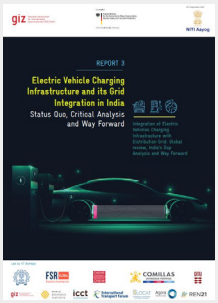
How the electricity is transported depends on where the wind farm is

The electricity generated in the turbines at the wind farm is fed into an offshore converter station, which transports it to land as direct current via high-voltage cables. Transferring the electricity as direct current minimises transmission losses. As offshore wind energy installations can nowadays produce direct current on the 66 kV voltage level, there is no longer any need to build a substation especially for the wind farm to collect the electricity and transform it to a higher voltage level. Once it reaches dry land, the electricity from the sea is transformed into alternating current in a substation, transformed to the correct voltage, and fed into the public grid.

If a wind farm is not far from the shore, a submarine cable will take the electricity to the next onshore connection point. Here the electricity is transferred via alternating current cables at a low voltage (220 kV). This is the case for all offshore wind farms in the Baltic Sea, for instance, because they are built closer to the shore.

Over the past few years, the costs of electricity production – installation and maintenance costs, for instance – from offshore wind energy have sunk rapidly, partly as a result of acquired knowledge. At the same time, the energy yield has grown many times over, without the overall costs increasing to the same extent.

6 Publications



Electric vehicle charging infrastructure and its grid integration in India: status quo, critical analysis and way forward

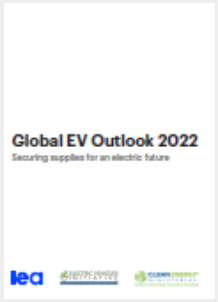
This study focuses on EV charging infrastructure, related policy and regulatory measures, grid integration of EVs, and the way forward for smooth EV adaption in the Indian EV ecosystem. The study developed a framework along with the inputs from a detailed critical international review on EV charging infrastructure development and its grid integration from different EV rich countries. The developed framework has been used as a basis for identifying gaps and scope for improvement in EV charging infrastructure adoption at the national level and in the States.

The full report is available for download here.

IEA Launched a New Podcast on Energy Innovation in India

IEA analysis indicates that nearly half of the emission reductions in a net-zero emissions scenario by 2050 will come from technologies that are currently not available in the markets today. Innovative low emission energy technologies will need to be deployed and scaled up to meet the various decarbonisation targets that have been announced around the world.

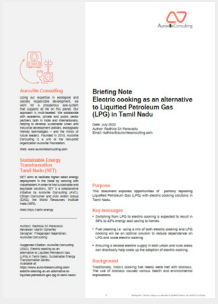
Listen to Innovation Frontlines now on Spotify, Apple Podcast, Google or Amazon.



Global EV Outlook 2022

The Global EV Outlook is an annual publication that identifies and discusses recent developments in electric mobility across the globe. It is developed with the support of the members of the Electric Vehicles Initiative (EVI).

The full report is available for download here.



Electric Cooking as an Alternative to Liquified Petroleum Gas (LPG) In Tamil Nadu

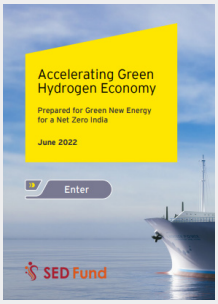
This document explores opportunities of partially replacing Liquefied Petroleum Gas (LPG) with electric cooking solutions in Tamil Nadu.

The full report is available for download here.

Harnessing Green Hydrogen

In this report, NITI Aayog and RMI have analyzed the opportunities that green hydrogen presents for India. The analysis suggests that the total hydrogen demand will increase from 6 million tons in 2020 to around 29 million tons by 2050. 94% of this hydrogen demand in 2050 could be green.

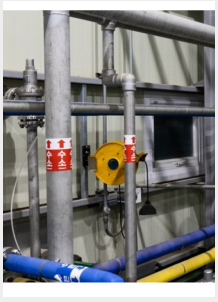
The full report is available for download here.



Accelerating Green Hydrogen Economy

The report highlights that India's ambition to produce 5 million tons of green hydrogen by 2030 will need ~115 GW of renewable power generation capacity and ~50 billion litres of demineralized water supply. To get a sense of this scale, the current all-India installed capacity of renewable power generation is ~113 GW as of May 2022.

The full report is available for download here.



Hydrogen – 10 Predictions for 2022

Electrolyzer sales are projected to quadruple this year – driven by the Chinese, U.S. and European markets – and clean hydrogen demand from industry is set to exceed use in cars several times over.

The full report is available for download here.

Innovation Outlook: Renewable Ammonia

Jointly developed by the International Renewable Energy Agency (IRENA) and the Ammonia Energy Association (AEA), this report provides a detailed overview of renewable ammonia in contrast to conventional and fossil-based ammonia with carbon mitigation, and includes a review of the current technology status and outlook.

The full report is available for download here.

Ammonia Technology Roadmap

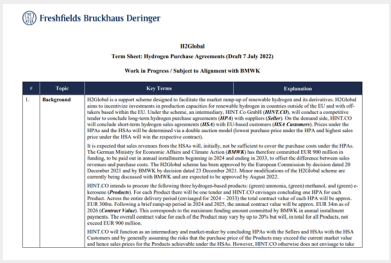
This technology roadmap uses scenario analysis to explore three possible futures for ammonia production.

The full report is available for download here.

International Market Consultation on the 1st H2Global Tender

International Market Consultation on the 1st H2Global Tender by Federal Ministry for Economic Affairs and Climate Action (BMWK), Germany.

The full report is available for download here.


Freshfields Bruckhaus Deringer

H2Global

Term Sheet: Hydrogen Purchase Agreements (Draft 7 July 2022)

Work in Progress / Subject to Alignment with BMWK

#	Topic	Key Terms	Explanation
1.	Background	H2Global is a support scheme designed to facilitate the market ramp-up of renewable hydrogen and its derivatives. H2Global aims to incentivize investments in production capacities for renewable hydrogen in countries outside of the EU and with off-takers based within the EU. Under the scheme, an intermediary, HINT.Co GmbH (**HINT.CO**), will conduct a competitive tender to conclude long-term hydrogen purchase agreements (**HPA**) with suppliers (**Sellers**). On the demand side, HINT.CO will enter into hydrogen sale agreements (**HSA**) with customers (**Customers**) in the EU-based economy (**EU Customers**). Prices under the HPAs and the HSAs will be determined via a double-auction model (lowest purchase price under the HPA and highest sales price under the HSA will win the respective contract). It is expected that sales revenues from the HSAs will, initially, not be sufficient to cover the purchase costs under the HPAs. The German Ministry for Economic Affairs and Climate Action (**BMWK**) has therefore committed EUR 900 million in funding, to be paid out in annual installments beginning in 2024 and ending in 2033, to offset the difference between sales revenues and purchase costs. The H2Global scheme has been approved by the European Commission by decision dated 20 December 2021 and by BMWK by decision dated 23 December 2021. Minor modifications of the H2Global scheme are currently being discussed with BMWK and are expected to be approved by August 2022. HINT.CO intends to procure the following three hydrogen-based products: (green) ammonia, (green) methanol, and (green) e-kerosene (**Product**). For each Product there will be one tender and HINT.CO envisages concluding one HPA for each Product. Across the entire delivery period envisaged for 2024 – 2033) the total contract value of each HPA will be approx. EUR 500m. Following a brief ramp-up period in 2024 and 2025, the annual contract value will be approx. EUR 34m as of 2026 (**Contract Value**). This corresponds to the maximum funding amount committed by BMWK in annual installment payments. The overall contract value for each of the Product may vary by up to 20% but will, in total for all Products, not exceed EUR 900 million. HINT.CO will function as an intermediary and market-maker by concluding HPAs with the Sellers and HSAs with the HSA Customers and by generally assuming the risks that the purchase price of the Products may exceed the current market value and hence sales prices for the Products achievable under the HSAs. However, HINT.CO otherwise does not envisage to take

H2Global Term Sheet: Hydrogen Purchase Agreements

H2Global Term Sheet: Hydrogen Purchase Agreements a draft from 7 July 2022. It's a work in Progress/Subject to Alignment with Federal Ministry for Economic Affairs and Climate Action (BMWK.

The full report is available for download here.

7 Upcoming Events

SET Tech Festival 2022

20 September 2022 | Berlin, Germany

Start Up Energy Transition is organising the SET Tech Festival on 20 September in Berlin. The Tech Festival brings together a global network of innovators shaping the future of energy. The event allows participants to access the best start-ups and outstanding entrepreneurs in the field of energy solutions, in addition to innovation-driven corporates, investors, and public organizations leading the energy transition.

For more information click here.

World Energy Storage Day

22 September 2022 | Virtual

India Energy Storage Alliance (IESA) is organising the 6th WESD Global Conference and virtual Expo (GCE), which will be held on 22 September 2022. WESD is a global movement initiated by various apex trade bodies working to promote and adopt energy storage, e-mobility and green hydrogen technologies for a sustainable future. This event is one of the largest open global events in this domain.

For further information please click here.

WindEnergy Hamburg and H2 Expo & Conference

27 - 30 September 2022 | Hamburg, Germany

Wind Energy Hamburg is the world's largest Expo and global congress for the wind industry, reflecting the dynamism of the wind industry in all its facets and across the entire value chain. Whether designers, manufacturers, suppliers, financiers, operators or service providers – both onshore and offshore – this is where industry leaders, young innovative companies and industry-related variables into an international marketplace of the wind industry meet. With high innovation potential and a real pioneering spirit. With the H2 Expo & Conference taking place in parallel, Hamburg gives space to two forward-looking technology sectors.

The Indo-German Chamber of Commerce (IGCC) in collaboration with the Indo-German Energy Forum (IGEF) Support Office is organising a business delegation to WindEnergy Hamburg 2022 and H2 Expo & Conference in Germany from 26 September till 1 October 2022.

For further information on the trade fairs, please click here.

Renewable Energy India Expo

28 - 30 September 2022 | Greater Noida, India

The 15th edition of REI Expo will take place at India Expo Center in Greater Noida, India from 28 to 30 September 2022. Both the exhibition and the conference provide an excellent opportunity to exchange ideas and technologies, gain insights into current global trends and connect at networking events. It is estimated to attract over 700+ Exhibitors, 40,000+ trade visitors and esteemed policy-makers, decision-makers, influencers, technical experts and professionalS. German Energy Solutions Initiative is also organising a German Pavilion at the trade fair. For further information please click here.

AatmaNirbhar Bharat

17-18 October 2022 | New Delhi, India

The Confederation of Indian Industry (CII) is organising the 3rd Edition of Conference & Exhibition on "AatmaNirbhar Bharat – Making India a Global Manufacturing Hub for Renewable Energy" scheduled from 17-18 October 2022 at Hotel Ashok, New Delhi.

For more information, please contact Mr. Surender Rai at surender.rai(at)cii.in.

H2 Hydrogen Technology Expo

19 - 20 October 2022 |Bremen, Germany

Hydrogen Technology Expo Europe is a solutions-driven forum that will discuss the development of new technologies to overcome technical challenges and propel hydrogen into the mainstream for stationary and mobile applications. The event will bring together the entire supply chain to discuss everything from technologies and solutions for low-carbon hydrogen production, efficient storage, transport and infrastructure, as well as advanced design, testing amd development, manufacturing solutions and advanced materials for hydrogen fuel cells. For further information click here.

Hydrogen Europe Flagship Event & Expo

24 - 28 October 2022 |Brussels, Belgium

Part of the European Hydrogen Week, Hydrogen Europe's Flagship Event and Expo (25-27 October 2022 at Brussels Expo) will offer attendees the chance to discover all things about emerging hydrogen-based solutions, trends, and approaches in the global energy sector. The event will have an exhibition area as well as two conference streams. The first stream, the High-Level Conference, will centre around the global, European, and national hydrogen developments and will include policy decision makers, C-suite industry representatives, and experts across the hydrogen value chain as speakers. The second stream, the Business to Business Conference, will be a source of inspiration for stakeholders as it will cover a wide range of aspects related to technology, market, and finance developments in the hydrogen sector. For further information click here.

The smarterE India / Intersolar India

7 - 9 December 2022 | Gandhinagar, Gujarat, India

With three parallel energy exhibitions, The smarter E India is India's innovation hub for the new energy world. It presents cross-sector energy solutions and technologies and reflects the interaction of the solar, energy storage and electric mobility industry. The smarter E India addresses all the key areas along the value chain and brings together local experts and international stakeholders in the energy future. The smarter E India combines the renowned Intersolar India, ees India and Power2Drive India. The exhibition trio will take place in Gujarat on December 7–9, 2022.

In tandem, The smarter E India Conference provides strategic inputs in all the key aspects of the fast-growing Indian solar, energy storage and EV ecosystem. Some of the key themes covered at the conference include manufacturing and logistics infrastructure, policy and market, solar technology advancements, rooftop solar and solar-utility scale project development in the post covid scenario.

For further information click here.

German Chancellor Fellowship for Tomorrow's Leaders at German Solar Association BSW in Berlin

The Alexander von Humboldt Foundation is searching for the Indian leaders of tomorrow. The German Chancellor Fellowship offers you an opportunity to take the next step in your career in Germany – irrespective of your field of work. In order to apply, develop your own project idea and find a host of your choice to mentor you. Once your host has confirmed, you can apply for fellowship. German Solar Association BSW in Berlin has already offered to be a host for you. The Chancellor of the Federal Republic of Germany is the patron of this fellowship programme. The Foundation grants up to 50 German Chancellor Fellowships annually – up to ten for each country.

If you are interested in a fellowship with the German Solar Association BSW you should get in touch with Ms. Luz Alicia Aguilar via aguilar(at)bsw-solar.de.

Retired German Energy Experts Offering Their Support to Indian Institutions

You are a freshly retired German engineer with experience in Energy Efficiency and already familiar with India's rich culture? Become part of the largest retired expert's database of the world, a group of more than 10 000 experts offering their German know-how to the world free of cost.

You are an India-based company or institution looking for a German expert to lower your expenditures for Energy?

Senior Experten Service (SES) India is constantly matchmaking German experts and Indian institutions in several potentially supported fields and is also able to finance such expert visits. SES is the worldwide leading organisation for voluntary assignments carried out by retired specialists and executives.

For further information please click here or contact Mrs. Sharon Mogose via sharon.mogose(at)indo-german.com.

Information about DeveloPPP

DeveloPPP.de is a mechanism by the German Federal Ministry for Economic Cooperation and Development (BMZ) to promote the involvement of the private sector in its development work. The BMZ provides financial and technical support to companies that want to become active in developing and emerging countries or already are, and whose investment has long-term benefits for the local population. The company bears at least half of the total project costs.

Interested companies cooperate with one of the two public partners that implement the program on behalf of the BMZ: DEG - Deutsche Investitions- und Entwicklungsgesellschaft GmbH or Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. The companies receive individual advice, benefit from regional market knowledge of the locations worldwide and gain access to local networks and political decision-makers.

Projects cover a wide range of sectors, such as training local skilled workers, piloting innovative technologies and demonstration plants, securing value chains and improving ecological and social standards in production plants.

Four times a year, companies can submit their project ideas to DEG or GIZ. The project should be developmentally effective and go beyond investments in the company's core business. To be eligible for funding, companies must have an annual turnover of at least 800,000 EUR, employ no less than 8 people and have a minimum of 2 audited annual financial statements. The duration is up to 3 years.

For further information please click here.

Information about H2Uppp

The H2-Uppp programme accompanies and supports efforts to ramp up the market for green hydrogen (H2) and power to X (PtX) applications in India and other selected developing countries and emerging economies in cooperation with the private sector. Unlike other hydrogen support initiatives, H2- Uppp focuses on the early stages of green hydrogen project development.

H2-Uppp aims to identify, prepare and accompany the implementation of projects for the production and use of green hydrogen and power-to-X application, and to raise awareness and promote knowledge transfer for the development of projects relating to green hydrogen. Together with the partner countries, this approach enables GIZ to identify cost-effective production paths and uses, pinpoint project opportunities along the value chain and develop business models.

To achieve the programme objectives, H2- Uppp focuses on three fields of action: In field of action 1 (Networking & Project Scouting), H2-Uppp supports companies in identifying project ideas and building networks, for example with project partners or potential off-takers. Partners from the private and financial sectors are also offered training on green hydrogen, and public-private dialogue is strengthened through conferences and trade fairs. In field of action 2 (PPP – Public-Private Partnerships), H2-Uppp works with private companies to jointly implement pilot projects in the field of green hydrogen and power-to-X. Formal public-private-partnerships (PPPs) are set up for this purpose (see following section). In field of action 3 (Know-How and Capacity Development), H2-Uppp accompanies the various project ideas with in-depth studies and technical trainings. Through specialist conferences, the activities of local institutions are further strengthened and joint measures are developed to ensure a successful market launch.

The programme has been commissioned by the German Federal Ministry for Economic Affairs and Climate Action (BMWK). Support is provided for PPPs along the entire hydrogen value chain (production, storage, conversion, transportation and usage). It is important that the PPP project focuses on public-benefit activities and contributes to the promotion of sustainable development in the project country. To be eligible for funding, companies must contribute at least 50% of the volume of the PPP project and comply with sustainability standards during the project.

For further information on H2-Uppp, on support opportunities or to receive the PPP application form, please contact H2Uppp(at)giz.de.

All Upcoming Events in the Next Six Months – Save the Date!

SET Tech Festival 2022
20 September 2022 | Berlin, Germany
https://www.startup-energy-transition.com/

World Energy Storage Day
22 September 2022 | Virtual
www.energystorageday.org

WindEnergy Hamburg
27 - 30 September 2022 | Hamburg, Germany
www.windenergyhamburg.com

15th Renewable Energy India Expo 2020
28 - 30 September 2022 | New Delhi, India
www.renewableenergyindiaexpo.com

H2 Hydrogen Technology Expo
19 - 20 October 2022 | Bremen, Germany
www.hydrogen-worldexpo.com

Hydrogen Europe Flagship Event & Expo
24 - 28 October 2022 | Brussels, Belgium
www.h2flagship.eu

The smarterE India / Intersolar India
7 - 9 December 2022 |
Gandhinagar, Gujarat, India
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